UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/672,116	09/27/2000	Jivendra K. Kale	19748-1.10US	7098

7590 11/03/2004	EXAMINER
Richard T. Ogawa	COLBERT, ELLA
TOWNSEND and TOWNSEND and CREW LLP	

ART UNIT	PAPER NUMBER
3624	

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DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/672,116	KALE ET AL.
	Examiner	Art Unit	
	Ella Colbert	3624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>26 July 2004</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-31</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-31</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some *   c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____.

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
     Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Prior Office Action

1.   Claims 1-31 are pending in this communication filed 07/26/04 entered as Response to

Office Action. There were no amendments to the claims in this response.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
> in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
> patent by another filed in the United States before the invention by the applicant for patent, except that an
> international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
> subsection of an application filed in the United States only if the international application designated the United
> States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 1-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Rebane (United

States Patent Number 6,405,179) B1).

Claim 1. Rabane discloses, A computer-implemented method of constructing a portfolio

having a utility defined by at least a first function and a second function, the computer-

implemented method comprising:

selecting a plurality of assets in the portfolio (abstract; fig. 6 and associated text); and

maximizing an expected utility of the portfolio (fig. 6 and associated text); wherein the at least

first function is a power-utility function having a first power defining the degree of risk aversion

of a holder of the portfolio and wherein the at least second function is a power-utility function

having a second power defining the degree of risk aversion of the holder of the portfolio,

wherein the first power is different from the second power (figs 7-12 and associated text).

Claim 2. Rebane discloses, The method of Claim 1 wherein the at least first power-utility function defines the utility of the portfolio for positive rates of returns and wherein the at least second power-utility function defines the utility of the portfolio for negative rates of returns (figs. 7-12 and associated text).

Claim 3. Rebane discloses, The method of Claim 1 wherein the at least first power-utility function is a log-utility function (fig. 9, 12 and associated text).

Claim 4. Rebane discloses, The method of Claim 2 wherein the at least first power-utility function a log-utility function (figs. 9, 12 and associated text).

Claim 5. Rebane discloses, The method of Claim 4 wherein the act of maximizing the expected utility of the portfolio further comprises the act of selecting a weight for each asset in the portfolio (fig. 8 and associated text).

Claim 6 . Rebane discloses, The method of Claim 5 wherein the act of selecting a weight for each asset in the portfolio further comprises: assigning a probability point to the occurrence of each one of a plurality of economic events (abstract; fig. 3 and associated text); computing the utility of the portfolio for each economic event (abstract; fig. 3 and associated text); multiplying the utility of portfolio computed for each economic event with the probability of the occurrence of that economic event thereby generating a plurality of values (abstract; fig. 3 and associated text); and summing the values (abstract; fig. 3 and associated text).

Claim 7. Rebane discloses, The method of Claim 6 wherein the act of assigning a probability point to the occurrence of each one of the plurality of economic events comprises assigning a probability point to the occurrence of each one of the plurality of economic events based on past economic data (abstract; fig. 3 and associated text).

Claim 8. Rebane discloses, A computer system for constructing a portfolio having a

utility defined by at least a first function and a second function, the computer system comprising:

a processor (fig. 4 and associated text); and a memory coupled to the processor, said memory

storing a plurality of code modules for execution by the processor, the plurality of code modules

comprising: a code module for selecting a plurality of assets in the portfolio (fig. 6 and

associated text); and a code module for maximizing an expected utility of the portfolio; wherein

the at least first function is a power-utility function having a first power defining the degree of

risk aversion of a holder of the portfolio and wherein the at least second function is a power

utility function having a second power defining the degree of risk aversion of the holder of the

portfolio, wherein the first power is different from the second power (figs. 7-12 and associated

text).

Claim 9. Rebane discloses, The computer system of Claim 8, wherein the code module

for maximizing the expected utility of the portfolio comprises code for the at least first function

defining positive rates of returns and wherein the code module for maximizing the expected

utility of the portfolio comprises code for the at least second function defining negative rates of

returns (figs. 7-12 and associated text).

Claim 10. Rebane discloses, The computer system of Claim 8, wherein the code module

for maximizing the expected utility of the portfolio comprises code for the at least first function

that is a log-utility function (figs. 9, 12 and associated text).

Claim 11. Rebane discloses, The computer system of Claim 9, wherein the code module

for maximizing the expected utility of the portfolio comprises code for the at least first function

that is a log-utility function (figs. 9, 12 and associated).

Claim 12. Rebane discloses, The computer system of Claim 11 wherein the code module for maximizing the expected utility of the portfolio further comprises a code module for selecting a weight for each one of the plurality of assets in the portfolio (fig. 8 and associated text).

Claim 13. Rebane discloses, The computer system of Claim 12, wherein the code module for selecting a weight for each one of the plurality of assets in the portfolio further comprises: code module for assigning a probability point to the occurrence of each one of a plurality of economic events (abstract; fig. 3 and associated text); code module for computing the utility of the portfolio for each one of the plurality of economic events (abstract; fig. 3 and associated text); and code module for multiplying the utility of the portfolio computed for each one of the plurality of economic events with the probability of the occurrence of that economic event thereby generating a plurality of values(abstract; fig. 3 and associated text); and code module for summing the values (abstract; fig. 3 and associated text).

Claim 14. Rebane discloses, A computer program for constructing a portfolio having a utility defined by at least a first function and a second function, the computer program being executable by a processor and comprising: a code module for selecting a plurality of assets in the portfolio (abstract; fig. 6 and associated text); and a code module for maximizing an expected utility of the portfolio (figs. 7-12 and associated text); wherein the at least first function is a power-utility function having a first power defining the degree of risk aversion of a holder of the portfolio and wherein the at least second function is a power utility function having a second power defining the degree of risk aversion of the holder of the portfolio, wherein the first power is different from the second power (figs. 7-12 and associated text).

Claim 15. Rebane discloses, The computer program of Claim 14, wherein the code

module for maximizing the expected utility of the portfolio comprises code for the at least first

function defining positive rates of returns and wherein the code module for maximizing the

expected utility of the portfolio comprises code for the at least second function defining negative

rates of returns (figs. 7-12 and associated text).

Claim 16. Rebane disclosed, The computer program of Claim 14, wherein the code

module for maximizing the expected utility of the portfolio comprises code for the at least first

function that is a log-utility function (figs. 9, 12 and associated text).

Claim 17. Rebane discloses, The computer program of Claim 15, wherein the code

module for maximizing the expected utility of the portfolio comprises code for the at least first

function that is a log-utility function (figs. 9, 12 and associated).

Claim 18. Rebane discloses, The computer system of Claim 17 wherein the code module

for maximizing the expected utility of the portfolio further comprises a code module for selecting

a weight for each one of the plurality of assets in the portfolio (fig. 8 and associated).

Claim 19. Rebane discloses, The computer system of Claim 18, wherein the code module

for selecting a weight for each one of the plurality of assets in the portfolio further comprises:

code module for assigning a probability point to the occurrence of each one of a plurality of

economic events (abstract; fig. 3 and associated text); code module for computing the utility of

the portfolio for each one of a plurality of economic events (abstract; fig. 3 and associated text);

and code module for multiplying the utility of the portfolio computed for each one of the

plurality of economic events with the probability of the occurrence of that economic event

thereby generating a plurality of values; and code module for summing the values (abstract; fig. 3 and associated text).

Claim 20. Rebane discloses, A networked system for constructing a portfolio having a utility defined by at least a first function and .a second function, the networked system comprising: a communication network (figs. 4-5 and associated text); a computer system coupled to the communication network; a database coupled to the communication network (figs.4-5 and associated text); wherein the computer system is configured to: select a plurality of assets in the portfolio (abstract; fig. 6 and associated text); and maximize an expected utility of the portfolio; wherein the at least first function is a power-utility function having a first power defining the degree of risk aversion

of a holder of the portfolio and wherein the at least second function is a power-utility function having a second power defining the degree of risk aversion of the holder of the portfolio, wherein the first power is different from the second power (figs. 7-12 and associated text).

Claim 21. Rebane discloses, The networked system of Claim 20 , wherein the at least first function defines positive rates of returns of the portfolio and wherein the at least second function defines negative rates of returns of the portfolio (figs. 7-12 and associated text).

Claim 22. Rebane discloses, The networked system of Claim 20, wherein the at least first function is a log-utility function (figs. 9, 12 and associated text).

Claim 23. Rebane discloses, The networked system of Claim 21, wherein the at least first function is a log-utility function (figs. 9, 12 and associated text).

Claim 24. Rebane discloses, The networked system of Claim 23, wherein the networked

system is further configured to select a weight for each asset in the portfolio (fig. 8 and

associated text).

Claim 25. Rebane discloses, The networked system of Claim 23, wherein the computer

system is further configured to: assign a probability point to the occurrence of each one of a

plurality of economic events (abstract; fig. 3 and associated text); compute the utility of the

portfolio for each one of the plurality of economic events (abstract; fig. 3 and associated text);

multiply the utility of portfolio computed for each economic event with the probability of the

occurrence of that economic event thereby generating a plurality of values (abstract; fig. 3 and

associated text); and sum the values (abstract; fig. 3 and associated text).

Claim 26. Rebane discloses, A computer program stored on a computer-readable

medium for constructing a portfolio having a utility defined by at least a first function and a

second function, the computer program comprising: code for selecting a plurality of assets in the

portfolio (abstract; fig. 6 and associated text); and code for maximizing an expected utility of the

portfolio (fig. 6 and associated text); wherein the at least first function is a power-utility function

having a first power defining the degree of risk aversion of a holder of the portfolio and wherein

the at least second function is a power utility function having a second power defining the degree

of risk aversion of the holder of the portfolio, wherein the first power is different from the second

power (figs. 7-12 and associated text).

Claim 27. Rebane discloses, The computer program of Claim 26, wherein the code for

maximizing the expected utility of the portfolio comprises code for the at least first function

defining positive rates of returns and wherein the code for maximizing the expected utility of the

portfolio comprises code for the at least second function defining negative rates of returns (figs.
7-12 and associated text).

Claim 28. Rebane discloses, The computer system of Claim 26, wherein the code for
maximizing the expected utility of the portfolio comprises code for the at least first function that
is a log utility function (figs. 9, 12 and associated text).

Claim 29. Rebane discloses, The computer system of Claim 27, wherein the code for
maximizing the expected utility of the portfolio comprises code for the at least first function that
is a log utility function (figs. 9, 12 and associated text).

Claim 30. Rebane discloses, The computer program of Claim 29 wherein the code for
maximizing the expected utility of the portfolio further comprises code for selecting a weight for
each asset in the portfolio (fig. 8 and associated text).

Claim 31. Rebane discloses, The computer program of Claim 30, wherein the
code for selecting a weight for each asset in the portfolio further comprises: code for
assigning a probability point to the occurrence of each one of a plurality of economic
events (abstract; fig. 3 and associated text); code for computing the utility of the portfolio
for each one of the plurality of economic events (abstract; fig. 3 and associated text);
code for multiplying the utility of portfolio computed for each economic event with the
probability of the occurrence of that economic event thereby generating a plurality of values
(abstract; fig. 3 and associated text); and code for summing the values (abstract; fig. 3 and
associated text).

Response to Arguments

4.   Applicant's arguments filed 07/26/04 have been fully considered but they are not

persuasive.

Issue no. 1: Applicant argues: Because Rebane fails to disclose a power utility

function, as defined in the instant application, Rebane fails to teach or suggest "wherein the at

least first function is a power-utility function having a first power defining the degree of risk

aversion of a holder of the portfolio and wherein the at least second function is a power-utility

function having a second power defining the degree of risk aversion of the holder of the portfolio

...", as recited in part, in claim 1 has been fully considered but is not persuasive. Response:

Applicant's claim language does not read that the equations contain variable power coefficients,

such as the power coefficient γ of the power utility function.   Although the claims are

interpreted in light of the specification, limitations from the specification are not read into the

claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Applicant's

claim language is broadly interpreted as Rebane teaching ""wherein the at least first function is a

power-utility function having a first power defining the degree of risk aversion of a holder of the

portfolio and wherein the at least second function is a power-utility function having a second

power defining the degree of risk aversion of the holder of the portfolio ...", as recited in part, in

claim 1 has been fully considered but is not persuasive" in the text associated with figs. 7-12 and

in particular col. 16, lines 37-45 (uses the coefficient A_r).

Issue no. 2: Applicant argues: Claim 2 is further allowable over Rebane for citing, in part,

"... wherein the at least first power-utility function defines the utility of the portfolio for positive

rates of returns and wherein the at least second power-utility function defines the utility of the

portfolio for negative rates of returns", which Rebane fails to teach or suggest has been

considered but is not fully persuasive. Response: Applicant is respectfully requested to point out

in the Specification the at least second function being a power-utility function having a second

power defining the degree of risk aversion of the holder of the portfolio, wherein the first power

is different from the second power. Where is the second power found in the Specification in this

mathematical formula? In so far as the Examiner determine, it is interpreted that Rebane

discloses "… wherein the at least first power-utility function defines the utility of the portfolio

for positive rates of returns and wherein the at least second power-utility function defines the

utility of the portfolio for negative rates of returns" in col. 15, line 60 –col. 16, line 59.

Issue no. 3: Applicant argues: Claims 3 and 4 are further allowable over Rebane for

reciting, in part, "… wherein the at least first power-utility function is a log-utility function",

which Rebane fails to teach or suggest has been fully considered but is not persuasive.

Response: The Examiner does not find a discussion of fig. 2 showing the log utility even though

this figure is prior art. A discussion is not found in the "Background of the Invention" or the

"Description of the Specific Embodiments". The Specification on page 6 simply reads "…the

utility of investment gains is characterized by a log-utility function, which, advantageously, has

the property of growth maximization over the investment horizon". This is not interpreted as the

"first power-utility funtion being a log utility function." Where is the "first power-utility

function a log-utility function"?

Issue no. 4: Applicant argues: Claim 6 is further allowable over Rebane for reciting, in

part, "assigning a probability point to the occurrence of each one of a plurality of economic

events; computing the utility of the portfolio for each economic event; multiplying the utility of

portfolio computed for each economic event with the probability of the occurrence of that

economic event thereby generating a plurality of values; and summing the values", which

Rebane fails to teach or suggest has been fully considered but is not persuasive. Response: It is

unclear from reading Applicant's Specification where the "generating of a plurality of values and

summing the values" occurs and is found in the Specification. Applicant is respectfully

requested to point out in the Specification where these claim limitations are disclosed or

suggested for proper clarification of the language in claim 6.

In conclusion: Applicant is respectfully requested to submit the following references for

consideration in assisting in the advancement of the prosecution of the instant application. If

these references have been submitted, they are not found in the application file and they are as

follows: **Page 1, lines 23-24 "Portfolio Selection", Journal of Finance 7, no. 1, March 1952,**

77-91; Page 2, lines 30-32 "Higher Return, Lower Risk: Historical Returns on Long-run,

Actively Managed Portfolios of Stock, Bond and Bill, 1936-1978" by Robert R. Grauer and

Nils H. Hakansson, Financial Analysts Journal, pp. 39-53, March-April 1982; and Page 9,

lines 7-10 "A Feasible Conjugate Direction Method to Solve Linearly Constrained

Minimization Problems", by Michael J. best, published in the Journal of Optimization

Theory and Applications, Vol. 16, No. 1-2, pages 25-38, July 1975.

Applicant is respectfully requested to distinctly point out and to claim in the independent

claims 1, 8, 14, 20, and 26 the inventive concept of Applicant's invention.

The Examiner is entitled to give limitations their broadest reasonable interpretation in

light of the Specification (see below):

2111   Claim Interpretation; Broadest Reasonable Interpretation [R-1]

>CLAIMS MUST BE GIVEN THEIR BROADEST REASONABLE INTERPRETATION

During patent examination, the pending claims must be "given the broadest reasonable interpretation consistent with the specification." Applicant always has the opportunity to amend the claims during prosecution and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. In re Prater, 162 USPQ 541,550-51 (CCPA 1969).<

Conclusion

5.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Inquiries

6.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Ella Colbert whose telephone number is 703-308-7064. The

examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Vincent Millin can be reached on 703-308-1038. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

E. Colbert
November 1, 2004